

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES

PATENT APPLICATION

Applicants: Hiroshi AKISUKI, Nobuhide DOTSUBO

Case: Sanyo-74/CPA(997203-07)

Serial Number: 08/919,670

Filed: August 28, 1997

Group Art Unit: 2712 2612

Confirmation No.: 7668

Examiner: ~~Alicia Harrington~~ Wendy Garber

Title: ELECTRONIC CAMERA AND BATTERY VOLTAGE CONTROLLING
METHOD EMPLOYED THEREIN FOR SUCCESSIVELY, RATHER
THAN SIMULTANEOUSLY, OPERATING CAMERA PORTIONS
DURING CONDITIONS OF LOW BATTERY VOLTAGE
(as amended)

ASSISTANT COMMISSIONER FOR PATENTS

Attn: Board of Patent Appeals and Interferences

Washington, DC 20231

S I R:

TRANSMITTAL OF APPEAL BRIEF
(PATENT APPLICATION 37 C.F.R. § 1.192)

Transmitted herewith, in triplicate, is the Appeal
Brief in this application, with respect to the Notice of Appeal
filed on June 21, 2001.

Pursuant to 37 C.F.R. § 1.17(f), the fee for filing the
Appeal Brief is \$ 320.00. A check in the amount of \$320.00 is

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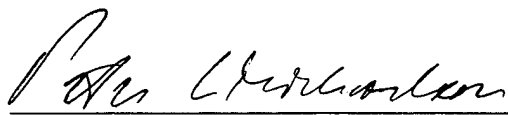
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Respectfully submitted,

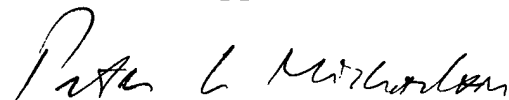
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CERTIFICATE OF MAILING under 37 C.F.R. 1.8(a)

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES

PATENT APPLICATION

Applicants: **Hiroshi AKISUKI, Nobuhide DOTSUBO**

Case: **Sanyo-74/CPA(997203-01)**

Serial No.: **08/919,670**

Filed: **August 28, 1997**

Group Art Unit: **2612**

Confirmation No.: **7668**

Examiner: **Alicia Harrington**

Title: **ELECTRONIC CAMERA AND BATTERY VOLTAGE CONTROLLING
METHOD EMPLOYED THEREIN FOR SUCCESSIVELY, RATHER
THAN SIMULTANEOUSLY, OPERATING CAMERA PORTIONS
DURING CONDITIONS OF LOW BATTERY VOLTAGE
(as amended)**

ASSISTANT COMMISSIONER FOR PATENTS
Attn: Board of Patent Appeals and Interferences
Washington, D. C. 20231

S I R:

APPEAL BRIEF

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In response to: (a) the final Office Action mailed March 26, 2001 (Paper No. 12); and further (b) the Notice of Appeal mailed on June 21, 2001 and received by the PTO on June 25, 2001, which set a due date for filing an Appeal Brief of August 25, 2001, that due date having previously been extended to November 26, 2001 by virtue of a petition and fee under 37 C.F.R. § 1.136 filed by the Applicants on August 14, 2001, the Applicants now submit this appeal brief and, through it, request that the Board of Patent Appeals and Interferences (hereafter referred to as "the Board") reverse the outstanding final rejections from which appeal is now being taken.

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I. REAL PARTIES IN INTEREST

Sanyo Electric Co., Ltd. ("Sanyo") a corporation of the country of Japan, is the real party in interest by virtue of an assignment from the above-captioned Applicants to Sanyo executed by both Applicants on August 5, 1997. This assignment, totaling three pages in length including the recordation cover sheet, was recorded in the PTO on August 28, 1997 beginning at frame 0104 of reel 8777.

II. RELATED APPEALS AND INTERFERENCES

To the best knowledge of both the Appellants and the Appellants' representative, there are no other appeals or interferences which will directly affect, be directly affected by, or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

Claims 1-12 are now pending. These claims are rejected and are appealed.

These claims, which were presented through the Applicants' amendment mailed January 10, 2001, have not been amended since the final action mailed March 26, 2001 from which this appeal is taken. A copy of these claims, as they currently stand, appears in the Appendix to this Brief.

IV. STATUS OF AMENDMENTS

No further amendments have been filed by the Applicants since the final action mailed March 26, 2001.

V. SUMMARY OF THE INVENTION

The invention relates to an electronic (digital) still camera which utilizes, among other components: an electronic flash containing a flash capacitor and a discharge tube, a monitor (typically LCD), a CCD (charge-coupled device) imager, a signal processing circuit for processing a signal generated by the imager into image data, and memory (both volatile, such as RAM (random access memory), and a non-volatile recording medium such as, flash memory), all powered by a battery.

The present invention is directed to operation of such a camera during a power saving mode.

Specifically, the present Applicants teach that while the camera operates in a power saving mode: (a) a captured image is displayed simultaneously while it is being recorded onto the recording medium but ceases to be displayed once that image has been fully recorded; and (b) such cessation occurs prior to initiating the charge of the flash capacitor. Hence, when the image disappears from the monitor, that image has already been recorded. Therefore, through the present invention, not only is battery power conserved by not energizing the monitor while the flash unit is being charged, but equally importantly, the user, from the mere act of seeing the image disappear, gains visual confirmation that the camera has recorded the image onto the non-volatile recording medium. Such confirmation is simple, yet very effective to users.

Independent apparatus claim 1 recites the specific operations set forth above of operating, during conditions of low battery charge, the flash and monitor sequentially and not

simultaneously, and both recording a captured image on a recording medium and displaying that image on the monitor while the flash capacitor is not charging, such that image recording completes before flash charging commences.

Each of claims 2-6 depends directly or indirectly from claim 1 and recites further distinguishing features of this invention. In that regard, claims 2 and 4 are each directed to simultaneously operating the monitor and charging the flash capacitor provided the battery charge equals or exceeds a predetermined value. Claim 3 is directed to a specific amount of this value, i.e., half the full capacity of the battery. Claim 5 specifies the monitor as an LCD monitor. Claim 6 further recites the camera as containing a digital processing portion for digitally processing a video signal.

Independent claim 7 contains similar recitations, though parallel and in the context of method steps, to those recited in claim 1. Dependent claims 8 and 10, and 9, each of which depends either directly or indirectly from claim 7, are similar to dependent claims 2 and 4, and 3, respectively.

Independent apparatus claim 11 contains similar, but narrower, recitations to those in claim 1. Dependent claim 12, which directly depends from claim 11, recites that once the flash capacitor has been completely charged, the monitor operates and further charging of that capacitor is prohibited.

VI. ISSUES PRESENTED FOR REVIEW

The propriety of the Examiner's final rejection of claims 1-12 is being appealed.

The following issues are now presented:

(A) Are claims 1-10, as they now stand, unpatentable as being obvious over the teachings in the Anderson et al patent (United States patent 5,963,255 issued to E. C. Anderson et al on October 5, 1999)?

(B) Are claims 11 and 12, as they now stand, unpatentable as being obvious over the teachings in the Anderson et al patent taken in view of those in Kare et al patent (United States patent 5,541,656 issued to S. D. Kare et al on July 30, 1996)?

VII. GROUPING OF CLAIMS

This application, as it now stands, contains only one group of claims, specifically claims 1-12, to which the rejections now being appealed apply. All these claims stand or fall together.

VIII. TABLE OF AUTHORITIES

Brown & Williamson Tobacco Corp. v. Philip Morris Inc.

56 U.S.P.Q.2d 1456 (Fed. Cir. 2000)

C. R. Bard, Inc. v M3 Systems, Inc. 48 U.S.P.Q.2d 1225

(Fed. Cir. 1998)

Heidelberger Druckmaschinen AG v. Hantscho Commercial Products,

Inc. 30 U.S.P.Q.2d 1377 (Fed. Cir. 1994)

Northern Telecom Inc. v. Datapoint Corp. 15 U.S.P.Q.2d 1321

(Fed. Cir. 1990)

Interconnected Plumbing Corp. v. Feil, et al 277 U.S.P.Q. 543

(Fed. Cir. 1985)

Panduit Corp. v. Dennison Manu. Co. 227 U.S.P.Q. 337 (Fed. Cir.

1985)

IX. ARGUMENT

A. Each of claims 1-10 is not obvious under the provisions of 35 U.S.C. § 103 over the teachings in the Anderson et al patent. Hence, all of these claims are patentable.

The Examiner has finally rejected claims 1-10 under 35 U.S.C. § 103 as being obvious over the teachings in the Anderson et al patent. The Applicants now respectfully traverse this rejection and request that the Board reverse it.

In doing so, the Examiner begins by noting the Anderson et al patent describes a digital camera that contains various components recited in claim 1 of the present Application. Having done so, the Examiner then recognizes that this patent describes a control system in the camera which selectively shuts down power to some of the camera components in order to save power. In that regard, the Examiner notes that this patent teaches "efficient use of the energy available in the camera when power level output from the battery is not at a maximum or well above the threshold/predetermined value." The Examiner notes that this patent, with respect to power states three and four, teaches that a flash unit "is the first to see power cuts, but other segments of the camera may operate."

Thusfar, the Applicants clearly agree with the Examiner's view of this patent.

However, based on the recognitions the Examiner makes, she then infers that "Anderson's camera implicitly would include recording and displaying before charging a flash could occur." She bases her view on: (a) the teachings in this patent that image data is still recorded while the flash unit charging

remains off in power state 3; and (b) her contention that "image data playback could occur upon user selection, since Anderson discloses the charging is shutdown not the display". She then concludes by stating: "Thus, a user may in fact see if an image he/she thought was previously recorded has been truly recorded in the reduced power state before the battery level decreased below at which the camera could record the image".

As the Board will soon appreciate, the salient portion of the system taught by the Anderson et al patent operates directly opposite to that of the present invention and as recited in claim 1. Consequently, extending the teachings of this patent, as the Examiner does by virtue of her "contentions", to encompass the present invention is both improper and unwarranted.

In essence, no one skilled in the art when faced with a patented system that does not include the specific operation that gives rise to the problem which the Applicants now solve would even think, much less be motivated, to infer that problem into that system and then devise the present inventive solution. To do otherwise constitutes "hindsight" -- a form of analysis impermissible in assessing obviousness.

In particular, the Anderson et al patent discloses a power management system (PMS) for use in a digital still camera for extending useful life of a camera battery. Such batteries include, for example, a NiCd, alkaline or lithium battery. This system, as described in, e.g., col. 2, line 52 et seq.; col. 3, line 37 et seq. and col. 7, line 23 et seq. of this patent, detects battery voltage, and as the battery continues to weaken, configures the camera, by successively shutting off power to

various components in the camera, in order to place the camera in modes having incrementally reduced power consumption. As explicitly described in col. 7, line 23 et seq., the system can place the camera in one of five modes: power state 5 (normal imaging power) through which all of the camera components are powered; power state 4 (low imaging power) through which a flash unit operates in a reduced power charging mode (i.e., charging at a slower rate) but apparently all other camera components are powered; power state 3 (restricted imaging power) through which the flash unit is shut down so as not to consume any power, though all other camera components are powered in order that the camera may "still capture additional images"; power state 2 (normal processing power) through which an image capture component and a signal processing unit are shut-down thus preventing the camera from capturing any additional images, but permitting a computer in the camera "to complete any outstanding processing functions"; and power state 1 (restricted processing power) through which if all processing has been completed, the computer initiates a power down shut down sequence, else all display and input/output (I/O) subsystems are shut down and no additional sector read/write command may be issued to a memory card.

As indicated in a state diagram shown in FIG. 6 in this patent and clearly discussed in col. 8, line 1 et seq. and also shown in the flowchart depicted in FIGs. 7A-7D and discussed in col. 10, line 29 et seq., once the detected voltage first falls below a threshold amount, the power management system takes immediate action. This action immediately changes the state of the camera, from, e.g., power management state 5, and based whether a flash unit is then charging or image capture component is then on, to either power management states 4, 2 or

1. Likewise, based on the current status of these components, the camera can transition from power states 4 or 3 to states 3, 2 or 1. Once a state change occurs, the power management system shuts off power to an appropriate component(s) of the camera consistent with the new state, and the power to that component remains off during that state. This is evident in, e.g., step 624 shown in FIG. 7B which the patent explicitly describes in col. 10, line 62 et seq.:

"In step 622, if the power source 74 voltage is less than the threshold voltage, the method continues on to step 624, else, the method returns to step 620. In step 624 the PMH [power management handler] 70 **immediately shuts off power to the flash unit 66.**" [emphasis added]

Hence, in power state 3, for example, though the flash is off, imaging, display and other camera operations are powered and hence remain operative. As such, these remaining camera operations can still simultaneously occur, even though the flash is off.

Specifically, the Examiner points to camera operation in power states 1 and 3. The Examiner opines that when a camera operates in power state 3, power to a flash unit is first terminated, by a power management system, but other systems of the camera will still be powered and may continue to operate. However, when the camera enters power state 1, which may occur at a battery voltage, of illustratively 5.2 volts, provided all image processing is completed by then, the power management system initiates a power down sequence which culminates in a

total "power failure". See, e.g., col. 7, line 23 et seq of this patent.

Based on the operation of the camera in power state 3, the Examiner implicitly recognizes that, inasmuch as some camera components remained powered while the flash is de-energized, the camera could still record and display an image. This recognition is based on her apparent belief that since other non-flash systems within the camera would remain operational in power state 3, then those systems could include image display and recording.

As to power states 3 and 4, the Anderson et al patent expressly states in col. 7, line 29 et seq -- the same citation specifically made by the Examiner:

"In power state 4 the flash unit 66 is configured so that it may only operate in a reduced-power charging mode. Alternatively, power state 4 may also include other power reduction techniques. In power state 3 the flash unit 66 is shut-down so as not to consume any power, however the camera 10 may still capture additional images. Alternatively, power state 3 may also include additional power reduction techniques, such as running only one of the motors 46 at a time."

Image capture is described in col. 4, line 45 et seq in the context of the functionality of capture electronics 32, illustrated in Figures 1 and 2 of this patent, as being that of electrically sensing the image and generating digital signals

representing scanned pixels. In particular, col. 4, line 45 et seq expressly states:

"The capture electronics 32 are disposed in coaxial alignment with the optical path 28, and are positioned to receive filtered light containing image data from the filter 24. The capture electronics 32 preferably receive control signals on line 36 from the signal processing unit 16 for controlling the focus, exposure and color balance of the camera 10. ... The capture electronics 32 in turn generate image data sent to the signal processing unit 16 over line 36. Lastly, the capture electronics 32 are coupled to receive electronic power and control signals over power bus 68 from the power supply unit 17. If the capture electronics 32 receive a capture electronics shut-down signal on the power bus 68 from the computer 20, the capture electronics 32 will shut down and no longer consume power."

Image storage occurs in a totally separate unit from image capture electronics 32, i.e., specifically computer 20 shown in Figures 1 and 4. As expressly noted in col. 6, line 47 et seq, computer 20 contains, as one of its constituent components, memory card 52 which is described as "preferably a non-volatile flash memory card for storing captured and processed image data".

Now, with respect to power state 2, this patent expressly states in col. 7, line 37 et seq:

"In power state 2 the image capture unit 14 and the signal processing unit 16 are shut-down, preventing the

camera 10 from capturing any additional images, but permitting the computer 20 to complete any outstanding image processing functions."

Since images are stored within computer 20 and particularly on memory card 52, then image recording likely constitutes an image processing function undertaken by the computer -- an operation that can occur during power state 2.

Hence, if the power management system operates the camera in power state 3, then the camera can capture an image. But, as the battery power continues to degrade, then once power state 2 is invoked, the capture electronics will be shut-down with the effect that no further images can be captured. However, during power state 2, computer 20 can apparently still record an image captured during immediately preceding power state 3 but, as of yet, not recorded to complete any remaining image processing operations.

Thus, to this extent, the camera described in the Anderson et al patent, while operating in power states 3 and then 2, appears to have the ability to record an image while the flash unit remains off.

But what happens if the operations were reversed; i.e., the flash unit could be charged after the image was captured? This sequence of operations could and does occur in the Applicants' camera. However, due to the rigid hierarchy of the shut down operations in the camera taught by the Anderson et al patent where, during power saving operation, an image is captured only AFTER the flash unit is charged, that sequence can NOT occur there.

The following can occur in a conventional digital still camera which permits the flash to charge after an image has been captured.

If, as a result of extended use, the camera battery has been sufficiently discharged, then any subsequent relatively heavy load, such as charging the flash capacitor, may cause the battery voltage to decrease below a value at which the digital electronics in the camera will cease to properly operate. When this occurs, any image that has been scanned and stored in a volatile frame store memory (e.g., RAM) but not yet recorded by the camera onto a non-volatile recording media, such as a flash memory card, will simply be lost.

Consequently, a user may later find that a picture (s)he thought was captured was, in fact, not recorded -- simply because the battery sufficiently exhausted its power while charging the flash. In this instance, the user would have no knowledge that the image was lost until (s)he tried to access it sometime later. Hence, depending on the circumstances involved, the user could well irretrievably lose a picture that could not easily, if at all, be re-taken; thus causing significant displeasure and inconvenience.

Therefore, a specific need exists to readily confirm to the user of that kind of conventional camera, while it operates in a power saving mode but prior to commencing flash charging, that the camera has, in fact, recorded a picture onto the media.

Nowhere does the Anderson et al patent provide any teachings, whether explicit or by implication -- even through the slightest suggestion, as to: (a) that such an indication would even be useful, and (b) how to provide it. This, of course, is not surprising since the Anderson et al patent is totally oblivious to this particular problem.

In fact, the specific power-down sequence taught by this patent simply precludes this particular problem from occurring. Specifically, as taught by the Anderson et al patent, the flash unit would be de-energized in power state 3 before a scanned image would be recorded in power state 2 and then remain de-energized throughout power states 2 (while the image was ostensibly being recorded) and 1, and until such time as the camera battery has been sufficiently recharged to restore adequate (e.g., full) power to the camera (e.g., re-set the power management circuitry to assume power state 5).

In sharp contrast, the time-staggered operation of the present inventive camera permits the flash capacitor to be recharged after an image has been recorded -- a sequence of operations that can not occur in the Anderson et al methodology. Judging by the Examiner's reasoning, she has apparently overlooked this fundamental distinction and its consequences.

A direct consequence of the Applicants' sequential operation is that it gives rise to the specific need set forth above -- one that is simply not present in the camera described in the Anderson et al patent.

The present invention meets this need. Specifically, the present Applicants teach that, while operating in a power

saving mode during which the flash unit and the LCD monitor operate sequentially, an image is displayed on the monitor simultaneously while it is being recorded onto the recording medium but ceases being displayed (i.e., the monitor is shut down) only AFTER that image has been fully recorded but BEFORE flash unit begins charging.

Advantageously through the present invention, not only is battery power conserved by not energizing the monitor while the flash unit is being charged, but equally importantly, the user, from the mere act of seeing the image disappear, gains confirmation that the camera has recorded the image onto the non-volatile recording medium. Such visual confirmation is simple, yet very effective to users. Consequently, through the present invention, possible loss of a scanned image by virtue of a sufficient drop occurring in the battery voltage during flash recharge is eliminated.

In sharp contrast, the Anderson et al patent, by teaching that image storage occurs after the flash unit is totally de-energized -- teachings expressly contrary to that which the Applicants employ, simply stops well short of even recognizing the specific operational sequence that, in the first instance, gives rise to the problem which the Applicants now advantageously and effectively solve.

Since the specific need which the Applicants address does not exist in the camera taught by the Anderson et al patent, then, clearly, it stands to reason that should anyone skilled in the art confront the teachings of this patent, that person would simply not be motivated to contemplate that need.

This patent fails to provide any suggestion, whether express or implicit, to that person to do so.

The Court of Appeals for the Federal Circuit has repeatedly and uniformly held that an essential element in assessing whether a claimed invention is obvious over the teachings in a reference, is evidentiary proof of a showing of a suggestion, teaching or motivation that would lead such a person, when faced with those teachings, to the invention.

In that regard, in the context of determining whether a patent for biopsy needles was obvious over the prior art, the Federal Circuit recently stated: "When a patent describes a new combination or arrangement of mechanical components, the legal conclusion of obviousness requires that there be some suggestion, motivation, or teaching in the prior art whereby the person of ordinary skill would have selected the components that the inventor selected and used them to make the new device."

C. R. Bard, Inc. v M3 Systems, Inc. 48 U.S.P.Q.2d 1225, 1231 (Fed. Cir. 1998). Furthermore, a few years earlier, the same Court in Heidelberger Druckmaschinen AG v. Hantscho Commercial Products, Inc. 30 U.S.P.Q.2d 1377, 1379 (Fed. Cir. 1994)

recognized: "When the patented invention is made by combining known components to achieve a new system, the prior art must provide a suggestion or motivation to make such a combination."

In doing so, the Court cited to its prior decision in Northern Telecom Inc. v. Datapoint Corp. 15 U.S.P.Q.2d 1321, 1323 (Fed. Cir. 1990) which similarly held: "It is insufficient that the prior art disclosed the components of the patented device, either separately or used in other combinations, there must be some teaching, suggestion, or incentive to make the combination made by the inventor." Moreover, the Court cited to its prior

decision in Interconnected Plumbing Corp. v. Feil, et al 277 U.S.P.Q. 543, 551 (Fed. Cir. 1985) which held (further citations omitted): "When prior art references require selective combination by the court to render obvious a subsequent invention, there must be some reason for the combination other than hindsight gleaned from the invention itself. There must be something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination." See also, Brown & Williamson Tobacco Corp. v. Philip Morris Inc. 56 U.S.P.Q.2d 1456, 1459 (Fed. Cir. 2000) and Panduit Corp. v. Dennison Manu. Co. 227 U.S.P.Q. 337, 344 (Fed. Cir. 1985).

Clearly, the Anderson et al patent discloses operations, such as recording an image while the flash unit is not charging and the necessity of shutting down selected camera components to reduce power consumption, that in isolation form portions of the present invention. However, this patent, when viewed in its totality, teaches a sequence of operations that not only lies contrary to that which the Applicants teach and claim but also which, as a result, does not even possess the specific problem which the Applicants now solve.

Consequently, in line with the analysis set forth by the above precedents, any reasonable reading of the Anderson et al patent reveals its utter failure to provide the evidentiary basis for any suggestion, teaching or motivation to one skilled in the art essential and sufficient to render the present invention obvious. As such, the Examiner has failed to put forth a prima facie case of obviousness.

Independent claim 1 currently contains suitable recitations directed at the distinguishing aspects of the present invention. In that regard, claim 1 recites as follows, with these distinguishing recitations shown in a bolded typeface:

"An electronic camera comprising:
a signal processing portion for processing an imaged video signal obtained from an imaging element to form image data;
a monitor for displaying said image data;
an electronic flash device;
a battery for supplying voltage to said signal processing portion, said monitor and said electronic flash device;
a battery voltage detector circuit; and
a system controller;
wherein:
said electronic flash device includes a capacitor charged when no light is emitted from the flash device, and a discharge tube which receives an output from capacitor and, in response thereto, emits light; and
said system controller receives an output from said battery voltage detector circuit, determines whether an amount of electric charge remaining in said battery is below a predetermined value, and controls displaying on said monitor and charging of said capacitor such that, when the amount of electric charge remaining in said battery is below said predetermined value, display of the image data and charging of the capacitor are not simultaneously performed and an operation of displaying the image data on the monitor and recording the image data on

a recording medium is completed before an operation of charging the capacitor occurs so that the image data will be preserved on the medium should the battery voltage, as a result of the charging operation, decrease below a level at which the camera would record the image, wherein the image data is displayed on the monitor after the image has been recorded but before the capacitor has begun charging such that, through display of the image data, a user is informed that the image data has been recorded on the medium."
[emphasis added]

Independent claim 7 contains similar distinguishing recitations.

Thus, the Applicants submit that the invention recited in each of claims 1 and 7 is not rendered obvious by the teachings in the Anderson et al patent. Therefore, both of these claims are patentable under 35 U.S.C. § 103.

Each of claims 2-6 and 8-10 directly or indirectly depends from claim 1 or 7, respectively, and recites further distinguishing features of the present invention. Therefore, the Applicants submit that each of these dependent claims is also not rendered obvious over the teachings in the Anderson et al patent and hence is patentable under the provisions of 35 U.S.C. § 103 for the same exact reasons set forth above.

B. Each of claims 11 and 12 is not obvious under the provisions of 35 U.S.C. § 103 over the teachings in the Anderson et al and Kare et al patents. Hence, both of these claims are also patentable.

The Examiner has finally rejected claims 11 and 12 under 35 U.S.C. § 103 as being obvious over the teachings in the

Anderson et al patent taken in view of the teachings in the Kare et al patent. The Applicants now respectfully traverse this rejection as well and request that the Board reverse it.

To the extent relevant, the Kare et al patent, as the Examiner correctly notes, teaches a hand-held CCD camera that does not take a picture until the flash has been fully charged. See, e.g., col. 5, line 46 et seq of this patent. This operation widely differs from that which gives rise to the present invention; namely, that an image is first taken followed by flash being charged rather than, as in the Kare et al patent, the reverse.

Therefore, any combination of the teachings of the Anderson et al and Kare et al patents would still result in camera operation that suffers the exact same deficiency which the present Applicants now solve, i.e., image loss caused by a decrease in battery voltage that arises from charging a flash after an image has been captured but through use of a sufficiently discharged camera battery. The Kare et al patent, like the Anderson et al patent, simply fails to recognize this problem, let alone provides any guidance as to how one skilled in the art should solve it.

Given this, the Applicants submit that their present invention is not obvious over the teachings in both the Anderson et al and Kare et al patents for the same reasons, as discussed above, that their invention is not obvious over the teachings in the Anderson et al patent alone.

Independent claim 11, as it now stands, contains suitable recitations (similar though narrower to those recited

in independent claims 1 and 7, as discussed above) directed at the distinguishing aspects of the present invention. In particular, claim 11 recites as follows, with its distinguishing recitations shown in a bolded typeface:

"An electronic camera comprising:
an operation key;
a signal processing portion for processing an imaged video signal obtained from an imaging element to form image data and storing said image data on a recording medium in response to operation of said operation key;
a monitor for displaying said image data thereon;
an electronic flash device;
a battery for supplying voltage to said signal processing portion, said monitor and said electronic flash device;
a battery voltage detector circuit connected to said battery; and
a system controller connected to said battery voltage detector circuit, said monitor, said signal processing portion and said electronic flash device;
wherein:
said electronic flash device has a capacitor charged with current supplied from said battery when said electronic flash does not emit a flash of light, and a discharge tube which receives an output from said capacitor and, in response thereto, produces the flash of light; and
said system controller receives an output from said battery voltage detector circuit and determines whether a remaining amount of electric charge in the battery is below a predetermined value, and, if the remaining amount of the charge is below the predetermined value, does not permit displaying on said monitor and

charging of said capacitor to occur simultaneously, such that the system controller prevents the capacitor from being charged while the monitor is displaying the image data when one screen of the image data is being recorded on the recording medium, and controls the monitor to be inoperative while said capacitor is being charged after one screen of said image data has been completely recorded on the recording medium so that the image data will be preserved on the medium should the battery voltage, as a result of the charging operation, decrease below a level at which the camera would record the image, wherein the image data is displayed on the monitor after the image has been recorded but before the capacitor has begun charging such that, through display of the image data, a user is informed that the image data has been recorded on the medium."

[emphasis added]

As such, the Applicants submit that claim 11, as it currently stands, is not rendered obvious in view of the teachings in the Anderson et al and Kare et al patents, whether taken singly or in any combination, including that posed by the Examiner. Hence, this claim is patentable under the provisions of 35 USC § 103.

Claim 12 directly depends from claim 11 and recites further distinguishing features of the present invention. Consequently, this dependent claim is not rendered obvious under the provisions of 35 U.S.C. § 103 and is patentable thereunder for the exact same reasons as is claim 11.

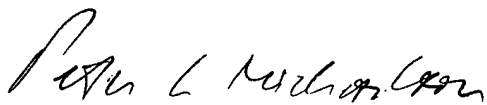
X. CONCLUSION

Hence, the Applicants submit that all of their claims, as they presently stand, are patentable under the provisions of 35 U.S.C. 103.

Therefore, the Appellants now respectfully request that the Board reverse the outstanding rejections, from which appeal is now taken, and direct the Examiner to pass this application to issue.

Respectfully submitted,


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CERTIFICATE OF MAILING under 37 C.F.R. 1.8(a)

I hereby certify that this correspondence is being deposited on **November 13, 2001** with the United States Postal Service as first class mail, with sufficient postage, in an envelope addressed to the Assistant Commissioner for Patents, **Attn: Board of Patent Appeals and Interferences**, Washington, D.C. 20231.


Signature

30,090
Reg. No.

APPENDIX

CLAIMS UNDER APPEAL

1 1. An electronic camera comprising:

2 a signal processing portion for processing an imaged video
3 signal obtained from an imaging element to form image data;

4 a monitor for displaying said image data;

5 an electronic flash device;

6 a battery for supplying voltage to said signal processing
7 portion, said monitor and said electronic flash device;

8 a battery voltage detector circuit; and

9 a system controller;

10 wherein:

11 said electronic flash device includes a capacitor
12 charged when no light is emitted from the flash device, and a
13 discharge tube which receives an output from capacitor and, in
14 response thereto, emits light; and

15 said system controller receives an output from said
16 battery voltage detector circuit, determines whether an amount
17 of electric charge remaining in said battery is below a
18 predetermined value, and controls displaying on said monitor and
19 charging of said capacitor such that, when the amount of
20 electric charge remaining in said battery is below said
21 predetermined value, display of the image data and charging of
22 the capacitor are not simultaneously performed and an operation
23 of displaying the image data on the monitor and recording the
24 image data on a recording medium is completed before an
25 operation of charging the capacitor occurs so that the image
26 data will be preserved on the medium should the battery voltage,
27 as a result of the charging operation, decrease below a level at
28 which the camera would record the image, wherein the image data

29 is displayed on the monitor after the image has been recorded
30 but before the capacitor has begun charging such that, through
31 display of the image data, a user is informed that the image
32 data has been recorded on the medium.

1 2. The electronic camera according to claim 1, wherein said
2 system controller also controls displaying on said monitor and
3 charging of said capacitor such that display of the image data
4 and charging of the capacitor are simultaneously performed when
5 the amount of electric charge remaining in said battery is at
6 least equal to said predetermined value.

1 3. The electronic camera according to claim 1, wherein said
2 predetermined value represents half of a full amount of the
3 electric charge stored in said battery.

1 4. The electronic camera according to claim 3, wherein said
2 system controller also controls displaying on said monitor and
3 charging of said capacitor such that display of the image data
4 and charging of the capacitor are simultaneously performed when
5 the amount of electric charge remaining in said battery is at
6 least equal to said predetermined value.

1 5. The electronic camera according to claim 1, wherein said
2 monitor is an LCD monitor.

1 6. The electronic camera according to claim 1, further
2 comprising a digital processing portion for applying a
3 digital-signal processing to a video signal.

1 7. A battery voltage controlling method employed in an
2 electronic camera, comprising the steps of:

3 detecting whether an amount of electric charge remaining in
4 a battery is below a predetermined value; and

5 successively performing displaying on a monitor and
6 charging of a capacitor when said amount of electric charge
7 remaining in said battery is below said predetermined value such
8 that an operation of displaying and recording image data is
9 completed before an operation of charging the capacitor occurs
10 so that the image data will be preserved on the medium should
11 voltage produced by the battery, as a result of the charging
12 operation, decrease below a level at which the camera would
13 record the image, wherein the image data is displayed on the
14 monitor after the image has been recorded but before the
15 capacitor has begun charging such that, through display of the
16 image data, a user is informed that the image data has been
17 recorded on the medium.

1 8. The battery voltage controlling method according to claim 7,
2 further comprising the step of simultaneously performing
3 displaying on said monitor and charging of said capacitor when
4 said amount of electric charge remaining in said battery is at
5 least equal to said predetermined value.

1 9. The battery voltage controlling method according to claim 7,
2 wherein said predetermined value represents half of a full
3 amount of the electric charge stored in said battery.

1 10. The battery voltage controlling method according to
2 claim 9, further comprising the step of simultaneously
3 performing displaying on said monitor and charging of said
4 capacitor when said amount of electric charge remaining in
5 said battery is at least equal to said predetermined value.

1 11. An electronic camera comprising:
2 an operation key;
3 a signal processing portion for processing an imaged video
4 signal obtained from an imaging element to form image data and
5 storing said image data on a recording medium in response to
6 operation of said operation key;
7 a monitor for displaying said image data thereon;
8 an electronic flash device;
9 a battery for supplying voltage to said signal processing
10 portion, said monitor and said electronic flash device;
11 a battery voltage detector circuit connected to said
12 battery; and
13 a system controller connected to said battery voltage
14 detector circuit, said monitor, said signal processing portion
15 and said electronic flash device;
16 wherein:
17 said electronic flash device has a capacitor charged
18 with current supplied from said battery when said electronic
19 flash does not emit a flash of light, and a discharge tube which
20 receives an output from said capacitor and, in response thereto,
21 produces the flash of light; and
22 said system controller receives an output from said
23 battery voltage detector circuit and determines whether a
24 remaining amount of electric charge in the battery is below a
25 predetermined value, and, if the remaining amount of the charge
26 is below the predetermined value, does not permit displaying on
27 said monitor and charging of said capacitor to occur
28 simultaneously, such that the system controller prevents the
29 capacitor from being charged while the monitor is displaying the
30 image data when one screen of the image data is being recorded
31 on the recording medium, and controls the monitor to be
32 inoperative while said capacitor is being charged after one

33 screen of said image data has been completely recorded on the
34 recording medium so that the image data will be preserved on the
35 medium should the battery voltage, as a result of the charging
36 operation, decrease below a level at which the camera would
37 record the image, wherein the image data is displayed on the
38 monitor after the image has been recorded but before the
39 capacitor has begun charging such that, through display of the
40 image data, a user is informed that the image data has been
41 recorded on the medium.

1 12. The electronic camera is claim 11, wherein, after said
2 capacitor has been completely charged, said system controller
3 prohibits the capacitor from being charged and causes the
4 monitor to operate.